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UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Engineering

MONTHLY NEWS LETTER

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No.4

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: MEMORANDUM NO. 649 from the Secretary of Agriculture :
: dated September 24, 1934 states: It has come to my atten- :
: tion that employees of the Department are receiving requests:
: for contributions to the campaign funds of political organiz-
: ations. I find that the Civil Service Act of January 16, :
: 1883 provides as follows:"that no person in the public :
: service is for that reason under any obligations to contrib-
: ute to any political fund, or to render any political service,
: and that he will not be removed or otherwise prejudiced for :
: refusing to do so." :
: Employees are reminded that any such contributions :
: made by them are presumed to be entirely voluntary. :
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Mr. McCrory spent some time during October in the Dakotas in connection with the establishment of migratory waterfowl refuges. This work is being done in cooperation with the Bureau of Biological Survey.

C. E. Ramser returned to the Washington Office about October 1 after inspecting the southern Soil Erosion Service projects.

Prof. E.W. Lehmann of the University of Illinois and J.G. Sutton have been spending considerable time during the past few months on the preparation of a report on the relation of drainage and soil erosion control to land use policies. The report will be completed November 1 after which Prof. Lehmann will resume his duties as head of the Agricultural Engineering Department of the University of Illinois.

W.D. Ellison has been appointed inspector of E.C.W. camps throughout the country. Mr. Ellison will assist in the coordination of the erosion control phases of the E.C.W. work. This Bureau has, during the past year, been acting as technical advisor to the Forest Service on erosion and flood control work, being done by E.C.W. Camps. Mr. Ellison plans to visit district headquarters in the near future.

A report to the Farm Credit Administration on the rice irrigation problem in Arkansas has been completed by B. S. Clayton in collaboration with P. A. Ewing. Mr. Clayton has returned to his headquarters at Belle Glade, Florida.

Over a one year period in 1933 and 1934 R.W. Baird had made an accurate and interesting study of terrace channel profiles at the Tyler Station. He found an average increased channel elevation of 0.098 feet as deduced from channel profiles and checked by an average of 0.104 feet as deduced from soil movement line data. On nine of the terraces studied

the channel bed was found to have an average width of 7.78 feet, the ridge base an average width of 13.55 feet, and the interval an average width of 39.33 feet. These terraces are on a field varying in slope from about 4 to 6 per cent.

H. S. Riesbol reports that measurements of the value of "n" in Kutter's formula have been computed from data secured at the Guthrie Station during recent fall rains. Four terraces, all 1,500 feet long and with average vertical intervals of 3.5 feet, but with different grades of level, 2, 4, and 6 inches per 100 feet are included in the study. The field, at the time of measurements, was in extremely smooth condition with no standing crop. It had just been tandem disked and planted to legume row crop. The computed values of "n" are: Level terrace=0.032, 2 inches per 100 feet=0.026, 4 inches per 100 feet and 6 inches per 100 feet both=0.017.

Teachers of vocational agriculture in the general vicinity of Temple are taking great interest in the terracing work at the Station according to P. L. Hopkins. A vocational teacher from McGregor County, accompanied by several prominent farmers of that region visited the Station on October 1. Twenty five vocational students from Belton High School inspected the station work on October 9.

As reported by A. T. Holman, 11.72 inches of rain have fallen at the Bethany Station during the past six weeks. Rainfall of 4.85 inches in August is 10 per cent above normal and 6.87 inches in September is nearly 100 per cent above normal. The recent rains have hindered the curing of alfalfa and delayed the seeding of winter wheat.

A gaging station which will measure run-off from 950 acres of land near the Pullman Station has been completed by P. C. McGrew. A Parshall measuring flume of 4 feet throat width and 3 feet depth is installed. This will not take care of the possible maximum flow so an emergency spillway weir is provided. The wing wall at one side of the flume is built 1.9 feet above the floor of the flume. This wing wall is 12.6 feet long. Thus, after the head exceeds 1.9 feet, at which point the flow of water is 44 second feet, water will start flowing over the weir as well as through the flume. At 3-foot head the combined capacity of flume and weir is 138 second feet which is 40 per cent greater than expected maximum run-off.

R. A. Norton reports the completion of a new office and laboratory building, financed by P.W.A. funds, at the Clarinda Station.

W. W. McLaughlin left the Berkeley office for Washington, D. C. the latter part of September to confer with Mr. McCrory and others regarding plans for present and future work. It was expected he would remain in the East until about the middle of October, returning by way of the Southwest, visiting field offices of the Division of Irrigation in Texas, New Mexico, Arizona, and southern California.

Substituting for W. W. McLaughlin as a member of the Regional Advisory Council of the National Soil Erosion Service, A. T. Mitchelson attended the regular meeting of that council held at Santa Paula, Calif. October 4.

In connection with the National Resources investigation, the Bureau has undertaken to supply certain items for the Land-Use Section. The work assigned to the Division of Irrigation of mapping the irrigated areas and those susceptible of irrigation in the future, in the 17 Western States, and tabulating data on the subject, has been carried on by Fred C. Scobey.

A summary report was prepared and submitted October 1. A more complete report is now in course of preparation. Mr. Scobey is now in Washington in connection with this work.

Acting as advisor on water conservation projects for the New Mexico Relief Administration, Harry F. Blaney has spent several weeks in that State, with headquarters at Santa Fe. Eight projects, the estimated cost of which will total over \$48,000, have been approved. These include the drilling of wells, construction, repair, and enlargement of reservoirs, etc. Three other projects to cost over \$250,000 are under consideration. These include construction of 200 water tanks, work on an irrigation canal, and planning a municipal water supply.

A trip to the fruit districts of northern Oregon and central Washington was made by R. A. Work for the purpose of studying the handling of cover crops in orchards, the growth habits of suitable permanent cover crops and their soil moisture requirements as far as known. A special study of cover crops has been conducted by Mr. Work at the Medford experiment station during the past season. Several varieties of alfalfa and clover, also vetch, oats, and Canadian field peas were tested.

Daily records of rate of growth of fruit on lemon trees near Pomona, Calif., taken by Colin A. Taylor and plotted on the new plotting boards designed by him, show the reaction of each tree to its water supply, and in this way the first sign of water shortage can be detected. It was found that the trees reacted as individuals rather than as plots. At the time of irrigation some trees showed no sign of water shortage while others had been in distress for as long as 2 weeks. In general the weak trees with poor foliage were the first to show distress by a falling off in growth rate of fruit. Similar experiments are now being made with orange plots.

Experiments in curing, shredding, baling, and storing corn stover in cooperation with the Iowa Agricultural Experiment Station and the Bureau of Agricultural Economics are in progress at Ames, Iowa. The shortage of stock feed in the drought area has made it necessary to save all available roughage. Under Iowa climatic conditions, stover shredded during the fall or early winter is likely to spoil, and if left in the field until completely cured weather conditions are usually unfavorable for hauling.

A push-type shaver and cotton stalk rake utilizing the tractor-operated shaver principle developed at Presidio is being constructed by the Division of Pink Bollworm Control of the Bureau of Entomology and Plant Quarantine at the San Antonio shop for trials in connection with field clean-up work at Presidio. Boll coverage tests with several dusting machines were completed early in October and the results indicate that on the average about three-fourths of the bolls in the upper half of the plants and one half of those in the lower half were completely covered with insecticides. Factors studied involved humidity, rate of discharge, number of outlets per row, plant height, and the insecticide used.

Results of tests recently conducted at Albany, Ga., by E. M. Dieffenbach show that spray guns in most common use in spraying pecans will turn leaves at a height of approximately 52 feet above the gun when using 300 pounds per square inch pressure, the pressure customarily recommended for pecan spraying.

In connection with the Farm Tillage Machinery Laboratory at Auburn, Ala. the dolly car, two dirt cars, and the soil bins have been completed and the laboratory building is nearing completion. Bids have been obtained for transporting the soils selected by Dr. G. D. Scarseth of the Alabama Polytechnic Institute for use in the experiments.

Recently 125 county agents, farmers and other interested persons visited Prattville Field, Alabama. Much interest was shown in the work there and indications are that a number of the visitors will follow the work closely in the future. High points of the three years results were explained. One of these points is that busting out the old row 8 inches deep in the winter and then bedding back on this furrow produced at the average rate of 1,305 pounds of seed cotton per acre whereas the conventional farm practice used in the vicinity of Prattville Field produced at the average rate of only 1,080 pounds of seed cotton per acre.

A fertilizer grain drill and a transplanter of the automatic plant-setting type were recently purchased for use in fertilizer placement experiments with peas, tomatoes, and cabbage at Geneva, N.Y. The machines will be altered in the fertilizer machinery laboratory at Arlington, Va., to accommodate special fertilizer attachments and other equipment required for experimental work in cooperation with the New York State Agricultural Experiment Station.

R. M. Merrill conferred with Prof. J. S. Houser of the Ohio Experiment Station at Wooster, Ohio, and with Messrs. Van Dine and Runner of the Bureau of Entomology at Sandusky, Ohio, on September 24 and 25. Plans were made for experimental burning for insect control in an orchard at Medina, Ohio, and in a vineyard near Sandusky.

Results of draft tests recently made at Urbana, Ill., by A.H. Glaves and Thayer Cleaver indicate that the draft of plows fitted with the self-aligning disk jointer developed at Toledo is from 10 to 15 percent lighter than the draft of plows fitted with standard combination colter and jointer. These results approximate closely the results of earlier tests at Toledo.

A seed scarifier of the disk type is being constructed at Arlington Farm for the Bureau of Plant Industry. This is the second machine which has been requested by that bureau for their use in experimental work.

Wallace Ashby attended the meeting of the North Atlantic Section of the A.S.A.E. at Amherst, Mass. Oct. 17-19 and presented a paper on Progress Toward Better Farm Homes, the material being based on the recent Farm Housing Survey. This was a cooperative meeting with the New England Institute of Rural Electrification. The program, dealing chiefly with rural electrification and farm structures problems, was attended by about 100 persons including representatives of the State colleges, the utilities serving the North Atlantic area, and manufacturers of equipment for rural electrification. Many interesting papers and discussions were presented at this meeting.

W. V. Hukill is enroute from Los Angeles to New York via the Panama Canal on a steamship loaded with perishable fruits. He is making tests to determine temperature and humidity conditions which affect the keeping quality of the fruit while in transit. Fifteen of the new low-velocity anemometers are being used for measuring air currents in inaccessible places.

J.R. McCalmont is at Columbus, Ohio, setting up the experimental corn crib for measuring pressures of corn on sides, walls, and braces of corn cribs. This experiment is being carried on cooperatively with Ohio Exp. Sta.

F.B. 1738 Farmhouse Plans, and T.B. 443 Application of Steam in the Sterilization of Soils, have recently been issued. Tests of a number of the newest models of oil burners are being made by A.H. Senner in which efficiency and operating characteristics are being determined.